

PRATTVILLE MANUFACTURING COMPANY, NUMBER ONE
(Prattville Cotton Mills and Banking Company)
(Autauga Cotton Mills)
(Clark-Pratt Cotton Mills)
(Hesslein and Company, Bradford Cotton Mills)
(Prattville Cotton Mill)
(Gurney Manufacturing Company)
242 South Court Street
Prattville
Autauga County
Alabama

HAER No. AL-183

HAER
ALA
1-PRATI,
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PHOTOGRAPHS

REDUCED COPIES OF MEASURED DRAWINGS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
NATIONAL PARK SERVICE
1849 C Street, N.W., NC300
Washington, D.C. 20240

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Location:	242 South Court Street Prattville, Autauga County, Alabama
Date of Construction:	1859, 1892
Fabricator:	various
Present Owner:	Gurney family
Present Use:	Not in use. Property for sale.
Significance:	Founded in 1846, the Prattville Manufacturing Company was one of the South's earliest textile mills. A spinning and weaving operation from its inception, the original factory was razed when the owners, Daniel Pratt and associates, decided to expand operations into a new brick picker house and a new three-story brick structure (referred to as "Mill No. 1"), built in 1859. Operations expanded again in 1892 when W.T. Northington and his associates added a second mill ("Mill No. 2"), which largely replicated Mill No. 1 in style and operations. Both mills continued spinning and weaving well into the twentieth century. Production diversified over the years and at different times company operations included knitting, dyeing, and sewing.
Historian:	LeeAnn Bishop Lands, August 1998

CHRONOLOGY

- 1846 Daniel Pratt begins manufacturing cotton goods as the Prattville Manufacturing Company, Number One, in a two-story frame building
- 1859 The original mill is razed and a three-story brick mill and a two-story brick picker house are erected.
- c.1870 Prattville Manufacturing Company is purchased by Daniel Pratt, Lewis M. Whetstone, Mills Rogers and Arthur Brown.
- c.1880 The mill is purchased by H.E. and Jacob Faber.
- 1886 Flood undermines the south end of the mill, causing part of the structure to collapse.
- 1887 Mill is sold at the auction block and purchased by W.T. Northington, Merrill E. Pratt, W.L. Ellis, C.S.G. Doster, Daniel Pratt, D.M. Snow and B.L. Holt who incorporate under the name Prattville Cotton Mills and Banking Company. Collapsed portion of mill is rebuilt and mill reopens.
- 1892 Mill No. 2 is built.
- 1916 Prattville Cotton Mills and Banking Company is purchased by J.C.F. Clark and is renamed Clark-Pratt Cotton Mills.
- 1919 Clark-Pratt Cotton Mills is purchased by A.E. Ledyard and is renamed Autauga Cotton Mills.
- 1923 Dye department is added to mill.
- c. 1930 Autauga Cotton Mills is purchased by J.K. Whitaker of New York and becomes the Bradford Mill of Hesslein and Company.

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- 1940 Bradford Mill is purchased by Safie Brothers (New York) and is renamed Prattville Cotton Mill, Inc.
- 1946 Company is purchased by R.J. Gurney, Sr. of Gastonia, NC and is renamed Gurney Manufacturing Company. Gurney expands dyeing and begins knitting operations.
- 1982 Ownership of the mill is passed to R.J. Gurney, Jr. and R.J. Gurney, Sr.'s grandchildren at the death of R.J. Gurney, Sr.
- 1997 Gurney Manufacturing Company's Prattville facility closes and the property is put up for sale.

If newspapers and others celebrated Prattville's cotton mill opening, that record has been lost to history. Few locals, and maybe not even town and mill founder Daniel Pratt and his associates, knew that their cotton mill was at the forefront of a mill boom that would mark the South by the 1890s. Indeed, Pratt's initial investment coincided with the rise of sectional tensions, and many voices throughout the South (including Pratt's) clamored for the region to expand its own manufactures.¹

Prattville, founded as an industrial village by Daniel Pratt in the 1830s, rests on Autauga Creek, a tributary of the Alabama River, about twelve miles northwest of Montgomery. Pratt's industrial establishments dominated the landscape and included, most notably, his cotton mill and his gin manufactory. The area's water power -- Pratt's reason for locating in the area -- must have appeared as agreeable to the industrialist as it did to the surveyor assessing the region for the U.S. Department of the Interior in 1883. The surveyor wrote of the creek:

It runs southerly through Autauga county, and empties into the Alabama river 8 miles west of Montgomery. It is not over 25 miles long, a moderate current and flows between rather low banks; its bed is sandy and its water is very clear and pure. At Prattville the average width is perhaps 40 feet. The volume is remarkably well maintained, owing to the presence of many springs in the section drained, and scarcely any hindrance is experienced at Prattville . . . from either high or low water.²

Pratt's gin company, a sash, door, and blind factory, and a grist mill originally operated on the 17-foot fall. In 1846, Pratt opened his cotton factory on the east side of Autauga Creek, utilizing the same fall.³

¹ As the Prattville cotton mill operated under numerous names, more general names are used throughout this paper. At times it is necessary to refer to the company by its corporate name, and in those references the name of the company as it was at the time of the reference is used. For information on southern and Alabama textile mill development, see Broadus Mitchell, *Rise of Cotton Mills in the South* (Baltimore: Johns Hopkins University Press, 1921); Richard W. Griffin, "Cotton Manufactures in Alabama to 1865," *Alabama Historical Quarterly* 18 (Fall 1956), 289-307; Randall M. Miller, *The Cotton Mill Movement in Antebellum Alabama* (New York: Arno Press, 1978); Randall M. Miller, "Daniel Pratt's Industrial Urbanism: The Cotton Mill Town in Antebellum Alabama," *Alabama Historical Quarterly* 34 (Spring 1972), 5-35.

² U.S. Department of the Interior, *Report on the Water-Power of the Eastern Gulf Slope* (Washington, D.C., 1883), 843.

³ General accounts of Pratt's life and business can be found in Merrill E. Pratt, *Daniel Pratt: Alabama's First Industrialist* (Birmingham: Birmingham Publishing Co., 1949) (reprinted in *Cotton History Review* 2 [January 1961], 19-29); S.F.H. Tarrant, ed., *Hon. Daniel Pratt: A Biography* (Richmond: Whittet & Shepperson, Publishers and Printers, 1904); Algernon L. Smith, *Continental Gin Company and its Fifty-Two years of Service* (Birmingham:

Prattville's reputation for industry belied Autauga County's agricultural economy. However, local residents and boosters did not dichotomize agricultural and industrial experiences, but embraced both. Boosters pressed for industry and diversified agriculture, town farmers markets and modern machines. For Prattville residents, industry and agriculture rose and fell together, since both centered on cotton. With cotton as the major cash crop and the nexus of both of the town's major industries, the economic effects of cotton market shifts reverberated through the community.

Prattville, like other southern towns, served an important function as a market for farm goods and the like. Pratt's cotton mill, though, like the gin company, became a focal point in the minds and memories of contemporaries. While a part of its importance rested in its local employment rolls, to many it grew to be a symbol of the town's progress. The mill matured during America's industrial revolution and the dawn of Progressivism, eras of national development accompanied by and intimately tied to the rhetoric of "modernization" and "progress." Prattville's citizens did not eschew this technological enthusiasm in favor of traditional values and livelihoods, they embraced it. The factories, their machines, and their operations became symbols of modernity. Indeed, if Prattvillians read their newspapers regularly, they received a regular dose of the goings-on at the mill, be it news about workers themselves, superintendents leaving for other mills, new management, or about changing cloth patterns and yarn sizes. Or perhaps they might have read of "the hum" of some grand new machine that promised to increase employment and lead the town further down the road toward progress.

The textile industry has enjoyed recent attention from historians. Allen Tullos, Douglas Flamming, David Carlton, and Jacquelyn Hall, for example, have thoroughly examined the family, work, and community life of Piedmont cotton mill workers, as well as their relationship to management and to technological change.⁴ Similarly, technological development in the early years of the textile industry has been well-analyzed by David Jeremy and Irwin Feller.⁵ While

Birmingham Publishing CO., 1952); Curt John Evans, "Daniel Pratt: Yankee Industrialist in the Antebellum South," M.A. thesis, Louisiana State University, 1993; Malcolm C. McMillan Papers, Auburn University Archives (also available at Continental Eagle Corporation Archives, Prattville, Alabama, hereafter referred to as CECA).

⁴ Douglas Flamming, *Creating the Modern South: Millhands and Managers in Dalton, Georgia, 1884-1984* (Chapel Hill: University of North Carolina Press, 1992); Jacquelyn Dowd Hall, et al., *Like a Family: The Making of a Southern Cotton Mill World* (Chapel Hill: University of North Carolina Press, 1987); David L. Carlton, *Mill and Town in South Carolina, 1880-1920* (Baton Rouge: LSU Press, 1982); Allen Tullos, *Habits of Industry: White Culture and the Transformation of the Carolina Piedmont* (Chapel Hill: University of North Carolina Press, 1989).

⁵ Irwin Feller, "The Diffusion and Location of Technological Change in the American Cotton-Textile Industry, 1890-1970," *Technology and Culture* 15 (October 1974), 569-93; David Jeremy, "Innovation in American Textile Technology during the Early 19th Century," *Technology and Culture* 14 (January 1973), 40-76. Also see Irwin Feller, "The Draper Loom in New England Textiles, 1899-1914: A Study of Diffusion of an Innovation," *Journal*

informative works, these monographs and articles fail to render a complete picture of technological change occurring within the textile mill. The focus on labor reveals much with regard to textile processes, mill structure, machinery, and the changing nature of mill ownership, but misses technologies not directly labor-related. Jeremy's study ends with the Civil War, when the southern textile industry is only developing, and Feller focuses solely on automatic loom development as his case study in technological diffusion and change.

In contrast, this report studies technological change in the operation of the textile mill as a whole in a period of dynamic expansion, 1880 to 1920. Heretofore, advances in this period have been eclipsed by the development of the Draper automatic loom, and Irwin Feller goes so far as to state, "indeed, there appears to have been little in the way of other major technological changes between the 1890s and the 1930s, when a cluster of substantial improvements . . . were marketed."⁶ By broadening our analysis to include peripheral technologies -- such as humidifying, air cleaning, motive power, and fire protection equipment -- a more complete and notably less linear picture of technological change relating to textile mill development is drawn. Indeed, rather than a technological "plateau," the period from 1880 to 1920 held many choices for the owners of textile mills -- owners who sought to cut overhead, to make better products in an era of expanding competition with the North, and to protect their investments.

Industrial and technological change at the Prattville cotton mills occurred in three distinct but at times overlapping periods -- periods that reflect the large-scale changes taking place within the southern textile industry but that also include items specific to the Prattville mill.⁷ From the mill's inception in 1846 to about 1880, the development of the Prattville Manufacturing Company resonates with experiences of the Piedmont cotton mills. In this era of cotton mill development, mills concentrated on spinning and weaving, owners purchased most machinery from northern manufacturers, unskilled labor drifted in from the surrounding countryside -- mostly families and including children -- and skilled labor often was northern in origin. Machinists were in the early stages of developing labor-saving textile machinery, and supporting technologies such as heating, air cleaning, and the like, were inefficient and underdeveloped.

of Economic History 25 (1966), 320-42.

⁶ Feller, 571-72. Hall echoes this sentiment and writes that "with these two machines, the ring spinning frame and the Northrop loom, the industry reached a plateau. Not until the 1920s would entrepreneurs launch another round of mechanical and organizational change." Hall, 46.

⁷ In summer 1998 the Prattville HAER team studied and delineated the three oldest principal buildings and five auxiliary buildings still in existence on the Prattville cotton mills site. The only extant corporate records relating to the mill are the occasional Daniel Pratt documents that found their way into the founder's gin company records. Given this deficiency, information regarding mill processes, products, and leadership primarily have been culled from textile directories, newspapers, the extant mill buildings and the few machines remaining in the structures, mill owners, managers, and workers. Despite the lack of company records, patterns manifest that reflect transitions within the southern textile industry, particularly its technological development, over the years studied.

By 1880, the rhetoric of the cotton mill boom was in full swing, though production would not catch up with boosterism until the 1890s. Nonetheless, in the 1880s engineers began concentrating on advancing supporting technologies, including quality-control-related machinery. Newly-developed air humidifiers spread rapidly through the industry, as did more efficient heating systems. Additionally, other technologies advanced in most industries during this period, and these improvements also supported and enhanced textile production. The Prattville mills, like other mills through the South, embraced new modes of motive power and new fire protection technologies as they became available. Taken together, these developments made for an era of dynamic change within the textile mill.

In the 1920s, when this study ends, textile manufacturing entered a new stage of expansion. The southern textile industry reached maturity at World War I and by 1920 the South claimed more textile establishments than its northern rivals. War-related textile demands sparked even greater growth and, with the general prosperity of the 1920s, many companies hoped for immediate success. Regional and national textile corporations bought and sold mills often: to move into new product lines; to procure materials needed for processes at other plants; or sometimes, simply for the plant's equipment. The changeovers affected product and process development in different ways. Some new proprietors changed little in product line or production technology from previous operations. Others, though, sought to expand production, change operations, or to move into newly-opened markets within the burgeoning textile industry. After 1920, for example, the Prattville mills expanded into dyeing operations (which included experimenting with yarn dyeing in addition to cloth dyeing), abandoned weaving, added knitting, decreased yarn making, and experimented with sewing finished products.

Textile beginnings, 1846-1880

In 1851 a visitor from *DeBow's Review* described Daniel Pratt's first textile mill, erected in 1846, as "about 150 feet long, 80 feet of which is 36 feet wide, with a brick basement and two stories of wood. On either end of this is attached two other buildings, one of brick showing four stories, and the other a brick basement with three stories of wood."⁸ Pratt and his partners purchased the equipment, 500 spindles and 100 looms, all at once, though a portion of the

⁸ "Gallery of Industry and Enterprise," *DeBow's Southern and Western Review* 10 (January 1851), 226. This original site also contained Pratt's two-story cotton gin manufactory which the writer described as "connected with and immediately on a line with the cotton factory, making the entire range of buildings about 300 feet wide, and presenting the appearance of one building." Pratt later expanded the gin operations into a building on the west side of Autauga Creek. The original gin shop was razed about 1856. Pratt incorporated the Prattville Manufacturing Company, Number One, on 13 January 1946. Shadrack Mims Collection, Alabama Department of Archives and History, Montgomery, Alabama (hereafter referred to as ADAH).

machinery stood idle for three or four years for want of orders.⁹ All were dissatisfied with the mill's slow progress, though, and Pratt implored his partner Shadrack Mims in an 1848 letter, "you must try and make the weavers satisfied. Tell them they shall have work enough after a while."¹⁰ Success came quickly, and when writers for *DeBow's Review* visited again in 1857 they updated their readers that Pratt's mill now utilized 1200 bales of cotton, 2800 spindles, and 100 looms.¹¹ Here Pratt specialized in making coarse fabrics for plantation use, including osnaburgs, sheeting, and linseys (a cloth made up of both wool and cotton). Pratt advertised the 9-ounce linsey (consisting of five ounces of wool and the balance of cotton) as designed for "Negro women and children." The 12-ounce linsey (eight ounces of wool and the balance cotton) was advertised for "Negro men."¹²

In order to increase the number of spindles and looms, Pratt hired builder David McCord to erect a new picker house and a new three-story brick mill in 1859.¹³ In later years the *Prattville Progress* editor reminisced that William Wallace Fay sailed for England to purchase machinery for the new mill. Fay encountered difficulties on the return voyage, however, as southern ports had been blockaded during the Civil War. During the time that the ship captain attempted to run the blockade, Fay was taken with yellow fever and died at sea. The machinery, local lore continues, arrived later to be installed in the new mill.¹⁴

Nineteenth-century mill design focused on carrying heavy machinery loads, withstanding vibration, efficient power transmission, lighting needs, and fire prevention (or at least designing to minimize damage from fires as much as possible). Indeed, fire was of particular concern, given the large amount of dust and lint generated in the processing of cotton. Additionally, trash caught in machinery, particularly in the openers and pickers, often sparked a fire. Pratt's new mill was being installed as New England mill engineers advanced new slow-burning mill building techniques. For the most part, these late-nineteenth century mill designs conformed to the standards established by the New England factory insurance mutuals, which incorporated fire protection technologies with other mill needs, such as adequate lighting.¹⁵ So thoroughly had

⁹ Equipment was often purchased over a period of years. Shadrack Mims, "History of Prattville," in Tarrant, *Hon. Daniel Pratt: A Biography* (Richmond: Whittet & Shepperson, Publishers and Printers, 1904), 26.

¹⁰ Daniel Pratt to Shadrack Mims, 26 September 1848, Pratt Collection, ADAH, Montgomery, AL.

¹¹ "A Day with Daniel Pratt, at Prattville," *American Cotton Planter and Soil of the South* (May 1857), 156. Also see "Prattville, Alabama," *DeBow's Review* 4 (September 1847), 136-37.

¹² *DeBow's Review* 2, 153. Advertisement, *American Cotton Planter and Soil of the South* (*DeBow's Review*) (April 1859).

¹³ *American Cotton Planter and Soil of the South* (May 1857), 156.

¹⁴ "Prattville's Cotton Mills," *Prattville Progress* (7 October 1937).

¹⁵ A.P. Stradling writes that, "the term mill-construction is commonly used to designate a method of construction brought about largely through the influence of the Boston Manufacturer's Mutual Fire Insurance Company of Boston, Mass." A.P. Stradling, "Wooden Mill and Warehouse Construction," in Frank E. Kidder and Thomas Nolan, *The Architect and Builders' Handbook* (New York: John Wiley and Sons, 1921), 758. Also see Brent

these building techniques permeated the textile industry that newspapers and textile industry journals alike pointed out new mills of the slow-burning construction type.¹⁶

The term "slow-burning" described the design's fire-resistant properties; thick floors and beams charred rather than burned rapidly. Techniques comprising the "slow-burning" classification varied at first. Engineer G. Underwood, for example, in his compilation *Standard Construction Methods*, described slow-burning construction very generally as "designed with timber columns and girders of large cross-section and with floors made of heavy plank laid directly upon girders."¹⁷ But the National Board of Fire Underwriters eventually set down the following specific guidelines: 8" columns with rounded or chamfered corners; 6" x 6" beams and girders; 3" thick floors with 1" finish flooring; 2-1/2" thick roofs.¹⁸

While these building techniques were northern in origin, southern textile mill builders kept pace with the latest in modern mill engineering and construction standards, and McCord adopted or exceeded these standards when he erected Pratt's new mill.¹⁹ First floor beams measured 12" x 14" and second and third floor beams measured 11-3/4" x 13", with chamfered corners. Flooring measured 3-3/4" thick. Finish flooring varied through the building, likely because of continual reflooring. Columns measure 8" diameter in the upper, rounded portion and 9" square in the lower, squared portion. Mill builders incorporated other fire-retarding building techniques, such as external stairwells separated from the main interior spaces by fire doors.

Additionally, as it was the initial textile processes that were particularly prone to the outbreak of fire, openers and pickers resided in a separate picker house building so as to prevent the spread of fire through the entire mill. The picker house associated with Mill No. 1 sat to the south of the building, with only the second floor walkway traversing the 40' separation between the two buildings. In the unfortunate cases when fires did break out, a 5,600-gallon water tank

Glass, *The Textile Industry in North Carolina: A History* (Raleigh: North Carolina Department of Cultural Resources, 1992), 38.

¹⁶ Mill design served for function, not beauty, and the water tower on Prattville Manufacturing Company's Mill No. 1 supported the only embellishment: a white wood cupola covered the 5,600-gallon water tank that sat atop the attached brick stair tower, lending a church appearance to the entire structure. Douglas Flamming remarks similarly about the appearance of the first Crown Mill building. See Flamming, 3. Regarding mill design, see Lindy Biggs, *The Rational Factory: Architecture, Technology, and Work in America's Age of Mass Production* (Baltimore: Johns Hopkins University Press, 1996); and Betsy Bahr, "New England Mill Engineering: Rationalization and Reform in Textile Mill Design, 1790-1920," Ph.D. dissertation, University of Delaware, 1987.

¹⁷ G. Underwood, *Standard Construction Methods* (NY: McGraw-Hill, 1931), 174.

¹⁸ George A. Hood and Nathan C. Johnson, *Handbook of Building Construction* (New York: McGraw Hill, 1920), 386-397; Whitney Clark Huntington, *Building Construction* (New York: John Wiley and Sons, 1929), 265-270; Sara Wermiel, "Development of Fireproof Construction in Great Britain and the United States in the Nineteenth Century," *Construction History* 9 (1993), 3-25.

¹⁹ Bahr, 223, 228-29.

located atop the mill tower provided water to taps and hoses on each floor. Barrels and buckets of water distributed through the mill added to fire protection. By the mid-1880s, the cotton mill had hired a watchman for the purpose of fire prevention, who made regular rounds of the mill at night and on Sundays, when the mill was not in production.²⁰

However, as historian Lindy Biggs points out, "power transmission technology proved to be the most restrictive component of nineteenth century mill construction."²¹ Power belting and shafting combined with lighting needs to necessitate long, narrow, multi-storied structures and weight and vibration characteristics of belt-driven machinery often dictated process arrangement. Within Prattville's mills, weaving machines, which were the heaviest machines and vibrated most, operated on the first floor, where the building could better carry the load and stress. Spinning operations, which had the least severe impact on the building, operated on the top floor and carding operations operated on the second. While common, this arrangement of machinery was not strictly adhered to, and other mill owners and superintendents experimented with process arrangement throughout the nineteenth and twentieth centuries. The Waltham (Massachusetts) mills, in the early nineteenth century, for example, housed carding on the first floor, spinning on the second, and weaving on the third and fourth floors, i.e., in the order of processing, from the bottom floor toward the top. The Merrimack Manufacturing Company, in the 1870s, housed weaving on the bottom floors, spinning on the middle floors, and carding on the top stories, i.e., in the order of processing, from the top floor toward the bottom.²²

The company stored cotton in its brick warehouse located across Factory Street (now Court Street) from the mill. When needed, workers moved cotton across Factory Street and into the first floor of the two-story brick picker house. Here, they removed ties and bagging from the bales and the opening machine tore apart the compressed cotton and removed dirt and short fibers from the raw product. Workers (and later cotton vacuums) moved cotton through to the second floor where picking or lapping machines continued the cleaning processing and produced continuous sheets of cotton. Dust and lint waste from these processes emptied into the creek on the west side of the building.²³

²⁰ The town also utilized the mill's water works when streets became particularly dry and dusty. The *Progress* noted in 1899 that "Factory street in the vicinity of the cotton mill is being sprinkled daily now from the mill's water works. This is good as it lays the dust and cools the atmosphere." *Prattville Progress* (21 September 1899). The 1884 Sanborn Fire Insurance map reports no watchman. The 1888 Sanborn map notes a watchman on duty. Sanborn Fire Insurance Maps, Prattville Alabama (Sanborn Map and Publishing Company).

²¹ Biggs, 19.

²² Jeremy, 52.

²³ The picker house associated with the 1892 building emptied this cotton dust and lint into the basement, where standing water helped settle the waste.

Workers moved cotton from the picker room to the carding room through a covered walkway connecting the second floors of the two buildings. In the carding room, machines with metal teeth further pulled and straightened the fiber, producing a thick, loose strand of combed cotton known as a "sliver." Drawing and roving machines combined slivers and further stretched and twisted the fibers. After the roving process, workers moved material to the third floor via an elevator located at the south end of the mill. Ring spinning machines on the third floor finished the cotton into thread by twisting the strands more tightly. Spoolers then combined ten or more threads to produce yarn. Winding machines finished the yarns onto various product shapes, depending on the intended use. Afterwards, workers moved the yarn back to the first floor for slashing and weaving. Slasher room workers prepared warp yarn with hot starch and oil to add strength and lubricity for weaving. From there, workers placed threads into the loom harness and loaded the loom beam onto the machine for weaving – the final stage of turning yarn into cloth.²⁴

Like many other companies, the Prattville mills expanded operations by simply increasing the numbers of spindles and looms. Cotton agent Shadrack Mims, reminiscing on his days as cotton agent for the mills, noted that Pratt reassessed his business in 1865 in an effort to decide between selling off his holdings and closing the mill, or purchasing all new machinery so as to bring the mill up to current standards. Pratt chose the latter and purchased new machinery. Loom stock increased only slightly, from 100 to 125, but his spindle inventory increased significantly, from 2700 to 4600.²⁵ Mims further notes that Pratt purchased machinery from Higaur and Sons of England, and Jenks and Sons (loom and carding machine manufacturers) near Philadelphia.

As spinning and weaving were the primary functions of early textile mills, it is not surprising that ring spindle and automatic loom development were the primary focus of machine developers. The earlier mule spindles consisted of a "side" that skilled laborers pushed in and out, one direction stretching the sliver and the other spinning it onto spindles. Ring spindles improved on this process by stretching and spinning simultaneously, but this caused more thread breakage. The Draper automatic loom utilized a rotating battery of bobbins. A new bobbin of yarn fed into the shuttle as one ran out. This modification reduced the number of machine stops and cut labor costs drastically.²⁶

Thus the advances in spindles and looms permitted a substitution of unskilled for skilled labor, which encouraged the adoption of these new machines by the nascent southern industry. And, too, the adoption of Draper looms meant less labor was necessary – weavers could tend

²⁴ For other descriptions of the spinning and weaving process, see Hall, 49-51.

²⁵ U.S. Bureau of the Census, *8th Census of the United States, Manufactures* (manuscripts), ADAH; U.S. Bureau of the Census, 1870, *9th Census of the United States, Wealth and Industry* (manuscripts), ADAH; Shadrack Mims, "History of Autauga County" (c. 1885), reprinted by the Autauga County Board of Commissioners, 1976.

²⁶ Hall, 45-46.

twenty automatic looms, for example, while they could attend only about six nonautomatic looms. With the introduction of ring spindles, the primary task became twisting thread ends together once they broke, a job that could be filled by unskilled workers and children. Additionally, at low yarn counts (coarse goods), rings were more labor intensive than mules, making them suitable for a region where labor was more abundant than capital.²⁷ Indeed, part of the reason rings proliferated in the South was the opening of new mills – capital not having already been sunk into the older mule spinning and nonautomatic loom machinery. Not surprisingly, Pratt embraced the newer technology. Account books for 1864 list 5000 ring frame parts purchased by the Prattville Manufacturing Company. Likely, Pratt purchased the ring spindles as he was buying equipment for the new mill.²⁸

Mill operators in Prattville recognized the role of humidity in the prevention of thread and yarn breakage, and they developed a variety of simple, though not always effective, methods to counter the effects of dry air. The air on the Autauga Creek side of the building contained more moisture than that on the building's east side. If more humid conditions were necessary, fans directed air into the mill through the west windows and out the east windows. If less moisture was necessary, fan placement was reversed. Sometimes, workers simply threw water on the floors of the mill to raise humidity.

Steam boilers were housed to the west of the mill and were used for mill heating as well as slashing.²⁹ The mill's heating system utilized steam and, likely, steam pipes ran the length of the mill ceiling, providing heat by direct radiation, as this was typical of mill heating arrangements at the time.³⁰ Some types of factories, including the gin manufactory across the creek, placed the heating pipes low on the walls.³¹ The threat of igniting cloth, thread, lint, and other fiber scraps so prevalent in cotton mills was too great for wall placement, however. Heating by these methods proved inefficient in general, though, and temperatures varied significantly throughout each floor.

Pratt designed his industrial complex for water power, and erected a dam with his original gin manufactory in 1839. About 1850, though, Pratt and his colleagues considered replacing the original structure with a new brick dam.³² Likely it was this new structure that the surveyor for

²⁷ Alice Galenson, *The Migration of the Cotton Textile Industry from New England to the South: 1880-1930* (New York: Garland, 1985) 39-42.

²⁸ Shadrack Mims Collection, ADAH; Fuller, 573-74.

²⁹ Pratt purchased a new boiler from Scranton Barney and Co. in 1876. Daniel Pratt Account Book, 24 March 1876 (notations indicate that the boiler was purchased for the cotton mills), Continental Eagle Archives.

³⁰ "The Sturtevant System of Heating, Ventilating and Moistening Textile Manufactories" (Boston: B.F. Sturtevant, 1889), 3, 7.

³¹ Regarding the heating of textile mills, see Edward Sawyer, "Mills and Mill Engineering," *Journal of the Association of Engineering Societies* 8 (November 1889), 525.

³² Shadrack Mims, "History of Autauga County."

the federal water-power report described in the early 1880s: "The dam was built at least 30 years ago, and is brick laid in cement. It rests on a bed of marl, is 150 feet long, 12 or 15 feet high, 18 feet wide at the base and 3 feet wide at the top. A plank apron protects the stream bed, and the dam is surmounted for its whole length by a stout timber bulkhead containing waste gates. The pondage above the dam was estimated at 30 acres."³³

No visible evidence remains of the wheel type or the design of the original headrace, however. Pratt notes that he modified the mill race to run through the old gin shop lot in 1856, but this is the only reference found indicating the original water power construction.³⁴ It is clear from indications in extant structures, fire insurance maps, and contemporary photographs, however, that since the construction of the 1859 structures, the wheels always operated from the northwest end of the mill, almost immediately west of the stair tower. As Pratt operated a sizable breast wheel in his gin company across the creek, it is likely that he equipped the cotton mill similarly.

The power shaft from the water wheel entered the basement on the north end of the mill and shafts, belts, and pulleys distributed power through the floor. This system drove two larger belts that ran through belt holes located on the north end of the building. These larger belts distributed power to shafts running the length of the basement, first floor, and second floor ceilings. Smaller belts from pulleys on the shafts ran through holes in the ceiling to drive individual machines on the floor above. Additionally, a shaft ran between Mill No. 1 and the picker house, extending power to that building. Another series of shafts, belts, and pulleys distributed power throughout both floors of the picker house.

Expansion, 1880-1925

Southern textile production recovered from the ravages of the Civil War and grew to threaten the northern textile manufacturers by 1880. Southern merchants, a strengthened class since the introduction of the crop lien after the war, invested their capital in the textile industry. With the support of local professionals like bankers and lawyers, these new entrepreneurs introduced a cotton mill campaign that, as Jacquelyn Dowd Hall appropriately observed, "took on a fervor of a social movement."³⁵

The cotton mill movement and the nation's dawning machine age were close kin. Industrialists throughout the country invested in new machinery and engineers developed new products and processes. Technological change at Prattville's cotton mill, then, was not restricted

³³ *Report on the Water-Power of the Eastern Gulf Slope* (Washington, D.C.: U.S. Dept. of the Interior, 1883), 843.

³⁴ Daniel Pratt to E.C. Griswold (11 March 1856), Pratt Collection, ADAH.

³⁵ Hall, *Like a Family*, 24.

to advances in textile machinery, but encompassed many elements that worked in concert with each other and affected mill operation in its entirety. Indeed, change came so frequently within the mill that local newsmen made it a habit to update townspeople as to the latest process improvement, machinery installment, or product variation.

Unfortunately for Prattville, this new era was marked by the devastating flood of 1886, which collapsed the southern portion of the main mill building and forced the purchase of new equipment.³⁶ The local Sheriff auctioned the failed mill and its surviving machinery in early 1887 and the previous mill owners covered some of their debt through the sale of 128 looms, one folder, one calendar, twenty-six flat cards, sixteen English cards, three English drawing frames, two American drawing frames, two slubbers, two speeders, twenty-one spinning frames, one opener, one kitson lapper, one English breaker lapper, one English finishing lapper, and one batting press.³⁷ On the courthouse steps that day, W.T. Northington, Merrill E. Pratt, W.L. Ellis, C.S.G. Doster, and Daniel Pratt of Prattville, and D.M. Snow and B.L. Holt of Montgomery purchased the mill and equipment for just over \$24,000, and soon after formed the Prattville Cotton Mills and Banking Company.

Once mill reconstruction began, the company quickly recovered production. Local newsmen reported that "the large lappers were started the 24th of December [1887]" and the event was deemed important enough that the mill owners invited Dr. Samuel P. Smith, "one of our oldest and most highly esteemed citizens" to throw in the first cotton, in honor of the occasion.³⁸ Soon after this local affair, mill spokespersons pronounced the steam heaters running and 119 looms back in operation.³⁹

After increasing production to the extent possible in the original structures, the company decided to expand the mill site. Owners erected a second mill building in the mid-1890s that duplicated the first mill – a 60' x 160' three-story brick building with basement. In the mid-1890s, the *Textile Manufacturers' Journal* informed its readership that W.T. Northington, then president of the cotton mill, was traveling through the North seeking the latest in equipment for his new factory.⁴⁰ Indeed, the South's machinery industry lagged behind the North's and most southern manufacturers traveled to northern cities when looking to restock their mills. E.N. Clemence of the Eagle and Phoenix Mills (Columbus, GA) shared his buying experiences with the Prattville industrialists upon his return from Worcester, MA, Hokedale, ME, and

³⁶ *Prattville Progress* (6 May 1887). The seam where old construction meets new construction is visible on the east and west walls of Mill No. 1. It appears that approximately one-third of the building collapsed in the flood.

³⁷ "Register's Sale. Mills Rogers, Complainant vs. The Prattville Manufacturing Company," *Prattville Progress* (4 March 1887), 3; "Sheriff's Sale," *Prattville Progress* (22 April 1887).

³⁸ "Cotton Mills Running," *Prattville Progress* (6 January 1888).

³⁹ *Prattville Progress* (10 February 1888); *Prattville Progress* (13 January 1888).

⁴⁰ *Textile Manufacturers' Journal* (7 September 1895); *Textile Manufacturers' Journal* (14 September 1895).

Philadelphia. Clemence told the Prattvillians that "the story printed some time ago about southern manufacturers being unable to obtain machinery because the manufacturers favored the north is incorrect." Rather, the machinists were backed up with orders and "a person was fortunate to have an order filled with any promptness."⁴¹

Expanding operations allowed mill owners unburdened by previous capital investments to buy the latest textile equipment available. *Progress* reporters noted that the mills "have put in a steam calendar and an automatic stamping machine in the cloth room which improves the appearance of the cloth very much and saves a great deal of labor. The stamper works as if it possessed reason and intelligence and does its part nicely and well."⁴² After final equipment purchases, the Prattville Cotton Mills and Banking Company operated with 290 narrow looms and 10,000 ring spindles through the turn of the century.⁴³

The operations of the new mill mimicked that of Mill No. 1, but processing moved in the opposite direction. While cotton processing in Mill No. 1 began in the picker room at the far south of the site, cotton processing in Mill No. 2 began in the picker room at the far north of the site. Operations remained the same on the mill floors; carding operated on the second floor, spinning on the third, and weaving on the first. The machine shop for the entire mill remained in the basement of Mill No. 1.

As the southern textile industry matured, factory owners and engineers took greater interest in quality control. Dust and lint affected processing and the final product, as well as created a poor working atmosphere. Concern over clean mills and clean air began spreading in the early 1900s, but it was not until 1925 that the self-propelled traveling air cleaner was first conceived and introduced at the Roxboro Cotton Mills in North Carolina. There, a ceiling-mounted track system suspended a traveling down-blowing fan to control the lint generated by yarn and cloth-making processes. Up to that point, workers simply swept up or wiped lint and dust from machinery. Cleaning units similar to Roxboro's spread quickly through the industry. Prattville's superintendents installed two Monotractor air cleaner units which traveled on ceiling track over the lines of machinery through the spinning rooms.⁴⁴

Humidity was another air quality issue that drew greater attention at the turn of the century. Operators experimented with various methods of humidifying textile mills, but adopted the Garland-type system widely. In this design, pumps moved water and air through the mill

⁴¹ *Prattville Progress* (15 May 1900).

⁴² "Echoes from the Factory," *Prattville Progress* (18 June 1897).

⁴³ *Davison's Textile Blue Book*, 1898-99 and 1899-1900.

⁴⁴ Andrews, *Men and the Mills*, 214.

which, at various points, combined to atomize the water and spray it through the area.⁴⁵ Prattville installed an American Moistening Company system that worked similarly. Originally, a small Knowles pump (made for the American Moistening System), working from the basement of Mill No. 1, moved water to all floors where atomizing units sprayed fine droplets of water through the atmosphere. Owners later replaced the small pump with a more powerful unit, but left the original pump in the basement, where it can be seen today.⁴⁶

Textile mills faced new choices in motive power sources around the turn of the century. Steam engines increasingly replaced water power, allowing new mills and factories to locate to urbanizing areas. But those choosing to remain on water power also had a new technological choice – the water turbine. Indeed, water turbines proliferated among cotton and wool manufacturers such that by the 1870s industrial historian Albert Bolles could assert that “the iron turbine has now almost superseded the great wooden wheel of our forefathers.”⁴⁷

Uriah A. Boyden introduced turbine technology in the 1840s when he developed a modified Fourneyron (French) turbine. By trial and error over the next few decades, engineers greatly improved upon this design, transforming it into the acclaimed American mixed-flow turbine wheel. By the late 1870s, engineers at Stilwell & Bierce Company (Dayton, OH) became some of the first to engineer a wheel that combined inward, downward, and outward flow characteristics into a single design – the Victor water turbine.⁴⁸ In the Victor turbine, water entered large openings on the periphery and discharged the water downward and outward via the extended runners (or buckets). The mixed-flow water turbines offered significant advantages over traditional wheels, most particularly increased horsepower from low-fall water sources, a particularly attractive feature to local mill owners.⁴⁹

⁴⁵ “The Sturtevant System of Heating, Ventilating, and Moistening Textile Manufactories” (Boston: B.F. Sturtevant, 1889), 16. An American Moistening Company (Crompton and Knowles) pump used for this purpose remains in the mill, though it is not certain what year this pump was installed, or even if it is the original. Later, this small pump was replaced by a larger pump, which has since been removed from the mill property, and its maker is unknown.

⁴⁶ Machine identification includes Knowles Steam Pump Works, The Blake and Knowles Steam Pump Works Successor, Made for the American Moistening Company, Boston, Mass. Size 5 x 8, no. K195951, No. D69386.

⁴⁷ Albert S. Bolles, *Industrial History of the United States* (Norwich, Conn, 1878), 303.

⁴⁸ Holyoke Machine Company introduced the first of this type when it put the Hercules turbine on the market in 1876, one year prior to the Victor turbine. See Arthur T. Stafford, et al., “The American Mixed-Flow Turbine and its Setting,” paper no. 1503, *Transactions of the American Society of Civil Engineers* (3 May 1922), 1266 and W.W. Tyler, “The Evolution of the American Type of Water Wheel,” *Journal of the Western Society of Engineers* 3 (April 1898), 890.

⁴⁹ “Mixed-flow” refers to the combination of inward and axial flow. The Victor water turbine is covered by patent no. 130,055 (30 July 1872), no. 158,997 (19 January 1875), and no. 195,855 (2 October 1877). *The Victor Water Turbine* (catalog), Stilwell & Bierce (Dayton, OH, 1891). This catalog may be found at the Old Sturbridge Village Library, Sturbridge Village, Massachusetts. *The Victor Water Turbine* (catalog), Stilwell & Bierce (Dayton, OH, 1879). This catalog may be found at the Hagley Museum and Archives, Wilmington, Delaware. For the history of

Thus, when Prattville's factory owners faced the decision of how to increase power to their machinery and increase time in operation (as low water often hindered operation), they had the choice of installing either a new water turbine or a new steam engine. Both the cotton mill and the gin factory opted to purchase water turbines from Stilwell & Bierce. The gin company purchased and installed their single Eclipse turbine in 1879. The cotton mill purchased and installed two Victor water turbines sometime between 1894 and 1900.⁵⁰

The power designers arranged the two 35-inch turbines on a horizontal shaft that extended into the basement of Mill No. 1. Victor turbine catalogs suggested such horizontal arrangements so as to eliminate the gear transition otherwise necessary to transmit power to horizontal shafts operating the belt pulleys. A cylindrical iron flume enclosed the two turbines, and water entered the enclosure through a similarly-constructed iron flume. Water drained from the turbine runners down through two iron draft tubes, one under each set of runners, and into the tail race. This design matches some of those suggested in the Stilwell & Bierce literature, and it is likely that a Stilwell & Bierce engineer or representative reviewed the mill site and the company's needs and suggested such an installation. The two turbines, in such an arrangement, generated about 260 horsepower to the mill's machinery, a significant increase over the 100 horsepower generated by the previous wheel.

When owners of Prattville's cotton mills decided to open a second mill, they again had a choice between installing a water turbine or a steam engine. While steam did not initially offer more horsepower than a new water turbine system might have, it did deliver a steady supply. Often, a low Autauga Creek prevented the continuous operation of water-powered machinery in Mill No. 1, a problem steam power would eliminate. Further, owners likely reasoned, Mill No. 1 could continue to run with water as its primary power and, if necessary, shafting could be coupled between the mills so that steam could drive the machinery in both buildings. With this in mind, company leaders designed Mill No. 2 to operate by steam power.

The steam engine provided 100 horsepower and was housed, with the single boiler, in auxiliary buildings just to the west of the mill. Again, locals were kept apprised of new arrivals

water turbine development see Arthur T. Stafford, et al., "The American Mixed-Flow Turbine and its Setting," paper no. 1503, *Transactions of the American Society of Civil Engineers* (3 May 1922), 1236-1356; A.C. Rice, "Notes on the History of Turbine Development in America," *Engineering News* 48, 208-210; W.W. Tyler, "The Evolution of the American Type of Water Wheel," *Journal of the Western Society of Engineers* 3 (April 1898), 879-901.

⁵⁰ While a double Victor turbine system remains on the site, sources such as *Davison's Textile Bluebook* (a directory of textile companies listed by location), which cited the number of water wheels, boilers, and engines at each mill, only indicates one turbine in operation until 1920. After 1925, however, the survey indicates one wheel again. This suggests that owners likely considered the double-turbine as one unit, and thus reported the double-turbine as a single turbine to surveyors. It is clear from Sanborn fire insurance maps, though, that owners modified the water power infrastructure and installed a hydraulic turbine sometime between 1894 and 1900.

and in June 1896 the *Progress* announced that "the big double engine for the cotton mill is being placed in position."⁵¹ The principal power belt entered the basement, and shafts, belts, and pulleys distributed power through the floor. This system drove two larger belts that ran through belt holes located on the south end of the building. These larger belts distributed power to shafts running the length of the basement, first floor, and second floor ceilings. Smaller belts from pulleys on the shafts ran through holes in the ceiling to drive individual machines on the floor above.

Both the cotton mill and the gin manufactory installed water turbines to replace older water power units as well as erected new buildings operated by steam power late in the nineteenth century. It is likely that the owners carefully considered this combination of motive powers. Water power still proved the most economical choice for driving mill machinery. As such, factory owners probably opted to run some of their operations by the cheapest method, as long as possible. When water power was not feasible – as when the creek fell too low to power the wheels – shafting could be coupled to the steam powered shafting to ensure continued operation.⁵²

The gin company and the cotton company continued to struggle with obtaining enough power, however, and eventually drew up an agreement whereby the cotton mills could use the full water power. This agreement stated that when Clark-Pratt Cotton Mills needed to use the full water power, the mill would furnish the gin company coal enough to supply coal steam power (including the shipping) for half of each day the mill used the full water power. The cotton mill was to give the gin company 12 hours notice in advance of the time the mill managers wished to use all of the water power.⁵³

While workers installed the new engine and boilers, others hailed the advent of electric power.⁵⁴ Electricity was normally introduced to southern towns via a factory selling its excess water- or steam-generated electric power. Downtown merchants usually were the first to enjoy electric power, and town residents only gradually installed wiring in their homes and connected to the power system, if they were even accessible to lines. Electric lights replaced the kerosene

⁵¹ *Prattville Progress* (26 June 1896).

⁵² A 1897 news account mentions that "on account of the low water in the creek the [cotton] factory is all running by steam power this week." *Prattville Progress* (18 June 1897).

⁵³ Executive Committee Meeting Minutes, 28 June 1918, Fulton Bag and Cotton Mills Collection, Special Collections Department, Robert W. Woodruff Library, Emory University, Atlanta, GA; Executive Committee Meeting Minutes, 6 August 1918, Fulton Bag and Cotton Mills Collection, Special Collections Department, Robert W. Woodruff Library, Emory University, Atlanta, GA.

⁵⁴ The Columbia Mills Company (Columbia, SC) became the first textile plant in the U.S. to operate from electricity. The mill produced its own electricity with a water-powered generator. Electric power was not widespread in the Piedmont until the Southern Power Company began distributing hydroelectric power from the Catawba River in 1905. In 1910, about three-quarters of the textile factories still ran on water or steam.

system in the Prattville mills between 1894 and 1897, though the new lights were not used during the long summer days when enough natural light reached interior spaces.⁵⁵ It is likely the mill produced its own electric power for these early lights, for in 1899 city boosters were still imploring local leaders to issue bonds for the installation of electric lights within the town.⁵⁶ The *Progress* editor demanded action on the matter and harped, "our town needs waterworks and electric lights and we are just as able to have them as many other towns that are not as large as Prattville which have been enjoying them for many years. Let's elect a mayor and council next year that will give us these necessities. We can get lower insurance rates when we get in shape for extinguishing fires."⁵⁷ Other sources of electricity soon formed, however, and the cotton mills and other factories purchased electricity from an independent power company.⁵⁸

With the 1920s came the transition of Prattville's industries to electric power. Surveyors for the Alabama Power Company began extending lines into Autauga County in late 1919 and the company eventually purchased power from the Autauga Oil and Fertilizer Company. Not long after, Alabama Power bought the oil company entirely.⁵⁹ Town boosters waxed enthusiastic about the power expansion, noting its importance for the town's industry, and *Prattville Progress* writers apprised their readers, "the day is not distant when all the manufacturing plants will be run by electricity."⁶⁰

It was after Alabama Power established a dependable system with industrial rates that the Prattville gin company and cotton mill began driving shafting with electricity. This changeover occurred piecemeal, however. Initially, electric power was substituted for the water power or steam power driving the belts, pulleys, and shafts. This system continued large friction losses and the necessity of turning all the shafting in the plant regardless of the number of machines operating. Group drive – the installation of motors to drive small groups of machines – followed and allowed engineers to stop sections of machinery when not in use, thus cutting energy usage in factories that, due to the structure of belting and shafting, previously had to operate entire

⁵⁵ *Prattville Progress* (18 June 1897).

⁵⁶ Additionally, the Sanborn Company normally used the I.E.P (Independent Electric Power Company) designation when power was provided by a separate entity. In the 1900 Sanborn fire insurance map, no such designation was given, though "electric lights" was included.

⁵⁷ *Prattville Progress* (9 November 1900).

⁵⁸ Likely, it was the Autauga Oil and Fertilizer Company that first sold power to the city, as it is the power generator mentioned in the early 1920s as selling power to Alabama Power. Sanborn Fire Insurance Map, 1911; *Prattville Progress* (9 October 1920).

⁵⁹ Alabama Power normally established itself in an area by purchasing the power generated by a plant (such as the Autauga oil mill). Later the power company simply purchased the power generating companies. *Prattville Progress* (9 October 1919); *Prattville Progress* (18 June 1923); *Prattville Progress* (5 July 1923).

⁶⁰ *Prattville Progress* (18 June 1923); *Prattville Progress* (5 July 1923).

buildings of machinery at once.⁶¹ Over time, individual electric motors were installed on each machine. This process was delayed somewhat by the lag in motor and machine engineering; motors did not always exist that would electrically power certain machines. As noted by mill architect J.E. Serrine in 1912, engineers had not yet designed individual motors appropriate for card machines.⁶² Not surprisingly, then, Prattville's carding machinery was the last group to be changed over to individual electric motors.⁶³

Like the gin company, the cotton mills operated from water, steam, and electricity for about fifteen years. Water power continued in use until 1943 when owners sold the rights to the dam and water power to the gin company across the creek. At that time, the cotton mill flume was filled with cement. Eventually, owners ordered the water turbine area filled in and it remained unexposed until recently.

With the rapid expansion of textiles, and growing investment in mills, it is not surprising that owners demanded better fire protection to protect their capital. In addition to continued advances in mill building techniques, advances in fire sprinkler technology and city service availability combined with the previously discussed dust and lint control to better protect mills against fires. Indeed, mill owners were inclined to protect their investments by adopting the latest technologies available, but they also were driven to keep their insurance rates low, which they could do by adopting insurance company-suggested equipment. Like the rest of the textile industry, beginning in the 1890s Prattville's cotton mill expanded or modified its fire prevention equipment quickly and often.

In 1900, as in earlier years, in addition to barrels and buckets of water, and fire hose, Grinnell automatic water sprinklers had also been installed.⁶⁴ Automatic sprinklers heads spaced 10' apart were supplied by a 20,000 gallon water tank atop Mill No. 2 tower and by the original 5,600 gallon tank on the Mill No. 1 tower. An F & J force pump (which operated from the basement of Mill No. 1) served as secondary support to the water supplied by the smaller water tank. Mill owners soon replaced this force pump, which had been deemed insufficient by fire insurance agents, with an American Fire Engine Company 1000 gallon-per-minute rotary force

⁶¹ Warren D. Devine, Jr., "From Shafts to Wires: Historical Perspective on Electrification," *Journal of Economic History* 43 (June 1983), 347; F.B. Crocker, V.M. Benedikt, and A.F. Ormsbee, "Electric Power in Factories and Mills" *Transactions of the American Institute of Electrical Engineers* (26 June 1895), 404.

⁶² J.E. Serrine, "Modern Mill Construction," *Textile Manufacturers Journal* (6 April 1912), 80.

⁶³ James Crosby, interview with the author, 23 June 1998.

⁶⁴ Grinnell automatic sprinklers spread rapidly through the textile industry after their introduction in the late 1870s. Indeed, Grinnell even cites the growth of southern industry as one of the reasons behind the company's rapid expansion. Grinnell Corporation, *100 Years of Piping Progress: Grinnell, 1850 to 1950* (1959).

pump. In the first decade of the twentieth century, six double fire hydrants were also added to the site.⁶⁵

Mill owners (and fire insurance companies) now required night watchmen to check in at stations throughout the mill. Clock devices installed at different check points registered a time stamp on a piece of paper when the watchman keyed or opened the clock. Thus, mill owners could check to ensure watchman were on their post throughout the night. Prattville's mill owners adopted a Newman clock for this purpose in the early 1890s, and watchmen checked in at six stations. After the addition of Mill No. 2, the night watchman used a Fuller Electric clock and made rounds to ten stations.⁶⁶

Despite these improvements, fires continued to plague mills, and automatic sprinklers did not entirely control conflagrations once they started. When fire broke out in the picker house in September, 1905, *Progress* reporters noted, "several streams of water were turned on the blaze through the windows of the building, and this, in connection with the spraying apparatus on the inside, soon placed the fire under control."⁶⁷ To further aid in fire protection, in March 1909, the mill superintendent had two hose houses erected over the fire pumps near both mill picker houses. Two hundred feet of fire hose remained attached to the plugs to save time in case of fire breakout.⁶⁸ The plan proved valuable, as trash in the lint cotton sparked a blaze as it passed through the opener in one of the picker houses the next month. Newsmen proudly reported that, "owing to the splendid system of water pipes and sprinklers with which the mills are equipped, the fire was extinguished in a few minutes, with very little loss."⁶⁹

Fire protection also improved through the expansion of city and county services. The cotton mill and gin company used force pumps to move water from the dam pond to their water tanks, but in 1906, cotton mill owners requested the town's Mayor and Council members to allow them to make a six-inch connection to the city water main. The mill superintendent's letter to the council explained that "this connection is for fire protection and is to be used as an auxiliary in case our pump should fail or a fire should be located so we could not reach the pump." To make the request palpable to city, the mill leaders offered, "it would also serve as an auxiliary to the city water works should the water fail at any time during a fire we could on short notice turn the water from the mill pump into the city mains and take care of a fire in any part of

⁶⁵ Sanborn Fire Insurance Maps, 1900, 1911, and 1925. The gin factory also placed a pump on the dam to supply the tank atop their facility. The *Progress* noted that "the pump will be operated by steam from the boiler and will furnish adequate fire protection while the water is low in the pond." *Prattville Progress* (29 June 1906).

⁶⁶ Sanborn Fire Insurance maps 1894, 1900; Newman Clock Company, "Newman Portable Watchman's Clock System," (New York: Newman Clock Company, 1911).

⁶⁷ *Prattville Progress* (1 September 1905).

⁶⁸ *Prattville Progress* (18 March 1909).

⁶⁹ *Prattville Progress* (22 April 1909).

the city where the water pipes are lain."⁷⁰ Further, they offered, the mill would take care of all expenses for labor and material.

Some council members and the mayor opposed the connection, however. Engineers in charge of the water works expressed concern over the contamination of the city's water with pond water. Mayor Burns argued that the city would derive no benefit from the connection and suggested that the mill simply install more hydrants near its property. Whether council members acquiesced at this time, it is unclear. By 1911, though, the mill's sprinkler system connected to the city's, "in case of emergency."⁷¹

Conclusion

Indeed, Prattville's textile leaders waded through many technological choices as the textile industry expanded from 1880 to 1920. The southern industry was slowly overtaking what had been the North's domain, and it took careful choices to remain competitive – to improve product quality and maintain or lower prices. Investments in individual mills increased substantially, and technologies protecting an owner's investment also improved. Many of the developments wrought in these years lasted throughout the rest of the century: Prattville's mill utilized the humidifying and air cleaning systems created in the early century until its 1997 closure; the gravity-pressure water system operated from Mill No. 1 for 100 years; and the Victor water turbine operated almost fifty years – well into the much-touted eras of steam and electricity.

The textile demands of World War I spawned new growth in America's textile industry. Postwar market decline combined with the ravages of the boll weevil and widespread labor uprisings to wreak havoc in the cotton market, and manufacturers sought to stabilize themselves by cutting costs and effecting greater production control. After recovering from postwar instability, the 1920s were generally prosperous for textile manufacturers. This increased prosperity combined with the drive for increased production and labor-saving machinery to change the shape of the textile industry. Supporting equipment remained largely that developed in the previous period. Instead, technological advance came in the way of new dyeing and knitting technology to support the increased product lines. At Prattville's mills, knitting, dyeing, sewing, and other processes were introduced (and sometimes alleviated) through the post-World War I era.

Gurney Manufacturing Company, the name by which the Prattville mills were last known, closed its operation in 1997. The site's 150-year history well reflects mill site

⁷⁰ *Prattville Progress* (reprint of the Minutes of City Council) (4 February 1909); *Prattville Progress* (reprint of the Minutes of City Council) (18 February 1909).

⁷¹ Sanborn Fire Insurance Map, 1911; *Prattville Progress* (reprint of the Minutes of City Council) (4 February 1909); *Prattville Progress* (reprint of the Minutes of City Council) (18 February 1909).

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development and textile industry development in general. In particular, study of the factory's change over time demonstrates how mill owners integrated a growing array of textile and supporting technology into an industrial system that produced yarn, cloth, and finished products.

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TABLE 1
Number of Employees, 1850 to 1920
Prattville Cotton Mills

Year	Number of Employees ⁷²
1850	136
1860	141
1870	159
1880	
1890	
1900	300
1910	300
1920	350

TABLE 2
Principal Equipment, 1850 to 1920
Prattville Cotton Mills

Year	Equipment ⁷³
1850	2800 spindles, 100 looms
1860	2700 spindles, 100 looms, 585 wool spindles
1870	4000 spindles, 125 looms
1880	
1890	5200 spindles, 150 looms
1900	10,000 ring spindles, 290 narrow looms
1910	12,000 ring spindles, 290 narrow looms
1920	11,800 ring spindles, 60 broad looms, 250 narrow looms

⁷² Employment figures were unavailable for 1880 and 1890. Figures shown were compiles from *Davison's Textile Blue Book* and the U.S. Census of Manufactures manuscripts, ADAH.

⁷³ Figures not available for 1880. Compiled from *Davison's Textile Blue Book*, *Dockham's Textile Directory*, and the U.S. Census of Manufactures, ADAH.

TABLE 3
Textile Products, 1850 to 1920
Prattville Cotton Mills

Year	Products ⁷⁴
1850	osnaburgs, sheeting
1860	osnaburgs, linseys
1870	sheetings, shirtings, osnaburgs, and yarns
1880	
1890	osnaburgs, sheeting, shirting
1900	osnaburgs, sheeting, shirting, and rope
1910	osnaburgs, duck, sheeting, and rope
1920	osnaburgs, duck, sheeting, rope, 2 to 15 single-ply yarns

⁷⁴ Data not available for 1880. Compiled from *Davison's Textile Blue Book*, *Dockham's Textile Directory*, and U.S. Census of Manufactures, ADAH.

Sources Consulted

"A Day with Daniel Pratt, at Prattville." *American Cotton Planter and Soil of the South* (May 1857): 156.

Bahr, Betsy. "New England Mill Engineering: Rationalization and Reform in Textile Mill Design, 1790-1920." Ph.D. diss., University of Delaware, 1987.

Biggs, Lindy. *The Rational Factory: Architecture, Technology, and Work in America's Age of Mass Production*. Baltimore: Johns Hopkins University Press, 1996.

Bolles, Albert S. *Industrial History of the United States*. Norwich (CT): 1878.

Carlton, David L. *Mill and Town in South Carolina, 1880-1920*. Baton Rouge: LSU Press, 1982.

Crocker, F.B. V.M. Benedikt, and A.F. Ormsbee. "Electric Power in Factories and Mills." *Transactions of the American Institute of Electrical Engineers* (26 June 1895).

Crosby, James. Interview with the author. 23 June 1998.

Davison's Textile Blue Book, 1898-99 and 1899-1900.

Devine, Warren D., Jr. "From Shafts to Wires: Historical Perspective on Electrification." *Journal of Economic History* 43 (June 1983).

Evans, Curt John. "Daniel Pratt: Yankee Industrialist in the Antebellum South." M.A. thesis, Louisiana State University, 1993.

Executive Committee Meeting Minutes, 28 June 1918 and 6 August 1918. Fulton Bag and Cotton Mills Collection, Special Collections Department, Robert W. Woodruff Library, Emory University, Atlanta, GA.

Feller, Irwin. "The Diffusion and Location of Technological Change in the American Cotton-Textile Industry, 1890-1970." *Technology and Culture* 15 (October 1974): 569-93;

Feller, Irwin. "The Draper Loom in New England Textiles, 1899-1914: A Study of Diffusion of an Innovation." *Journal of Economic History* 25 (1966): 320-42.

Flamming, Douglas. *Creating the Modern South: Millhands and Managers in Dalton, Georgia, 1884-1984*. Chapel Hill: University of North Carolina Press, 1992.

Galenson, Alice. *The Migration of the Cotton Textile Industry from New England to the South: 1880-1930*. New York: Garland, 1985.

"Gallery of Industry and Enterprise." *DeBow's Southern and Western Review* 10 (January 1851): 226.

Glass, Brent. *The Textile Industry in North Carolina: A History*. Raleigh: North Carolina Department of Cultural Resources, 1992.

PRATTVILLE MANUFACTURING COMPANY, NUMBER ONE
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(Page 27)

Griffin, Richard W. "Cotton Manufactures in Alabama to 1865." *Alabama Historical Quarterly* 18 (Fall 1956): 289-307.

Grinnell Corporation. *100 Years of Piping Progress: Grinnell, 1850 to 1950*. Grinnell Corporation, 1959.
Hall, Jacquelyn Dowd, et al. *Like a Family: The Making of a Southern Cotton Mill World*. Chapel Hill: University of North Carolina Press, 1987.

Hood, George A., and Nathan C. Johnson. *Handbook of Building Construction*. New York: McGraw Hill, 1920.

Huntington, Whitney Clark. *Building Construction*. New York: John Wiley and Sons, 1929.

Jeremy, David. "Innovation in American Textile Technology during the Early 19th Century." *Technology and Culture* 14 (January 1973): 40-76.

Miller, Randall M. "Daniel Pratt's Industrial Urbanism: The Cotton Mill Town in Antebellum Alabama." *Alabama Historical Quarterly* 34 (Spring 1972): 5-35.

Miller, Randall M. *The Cotton Mill Movement in Antebellum Alabama*. New York: Arno Press, 1978.

Mims, Shadrack. "History of Autauga County." 1885; reprinted by the Autauga County Board of Commissioners, 1976.

Mims, Shadrack. "History of Prattville." In *Hon. Daniel Pratt: A Biography*, ed. Mrs. S.F.H. Tarrant. Richmond: Whittet & Shepperson, Publishers and Printers, 1904.

Mitchell, Broadus. *Rise of Cotton Mills in the South*. Baltimore: Johns Hopkins University Press, 1921.

Newman Clock Company. "Newman Portable Watchman's Clock System." New York: Newman Clock Company, 1911.

Pratt, Daniel, to E.C. Griswold, 11 March 1856. Pratt Collection, Alabama Department of Archives and History, Montgomery, AL.

Pratt, Daniel to Shadrack Mims, 26 September 1848. Pratt Collection, Alabama Department of Archives and History, Montgomery, AL.

Pratt, Merrill E. *Daniel Pratt: Alabama's First Industrialist*. Birmingham (AL): Birmingham Publishing Co., 1949; reprinted in *Cotton History Review* 2 (January 1961): 19-29.

"Prattsville, Alabama." *DeBow's Review* 4 (September 1847): 136-37.

Prattville (AL) Progress, for the years 1887-1923.

"Register's Sale. Mills Rogers, Complainant vs. The Prattville Manufacturing Company." *Prattville (AL) Progress* (4 March 1887): 3.

Rice, A.C. "Notes on the History of Turbine Development in America." *Engineering News* 48.

PRATTVILLE MANUFACTURING COMPANY, NUMBER ONE
HAER No. AL-183
(Page 28)

Sanborn Fire Insurance Maps, Prattville Alabama. Sanborn Map and Publishing Company, 1884, 1888, 1890, 1894, 1900, 1911, 1925.

Sawyer, Edward. "Mills and Mill Engineering." *Journal of the Association of Engineering Societies* 8 (November 1889).

Serrine, J.E. "Modern Mill Construction." *Textile Manufacturers Journal* (6 April 1912).

"Sheriff's Sale." *Prattville (AL) Progress*, 22 April 1887.

Smith, Algernon L. *Continental Gin Company and its Fifty-Two years of Service*. Birmingham (AL): Birmingham Publishing Co., 1952.

Stafford, Arthur T. et al. "The American Mixed-Flow Turbine and its Setting." Paper no. 1503, *Transactions of the American Society of Civil Engineers* (3 May 1922): 1266.

Stilwell & Bierce Company. *The Victor Water Turbine* (catalog). Dayton, OH: Stilwell & Bierce, 1879. Hagley Museum and Archives, Wilmington, Delaware.

Stilwell & Bierce Company. *The Victor Water Turbine* (catalog). Dayton, OH: Stilwell & Bierce, 1891. Old Sturbridge Village Library, Sturbridge Village, Massachusetts.

Stradling, A.P. "Wooden Mill and Warehouse Construction." In Kidder, Frank E. and Thomas Nolan, *The Architect's and Builders' Handbook*. New York: John Wiley and Sons, 1921.

Sturtevant, B.F. "The Sturtevant System of Heating, Ventilating and Moistening Textile Manufactories." Boston: B.F. Sturtevant, 1889.

Textile Manufacturers' Journal (7 September 1895, 14 September 1895).

Tullos, Allen. *Habits of Industry: White Culture and the Transformation of the Carolina Piedmont*. Chapel Hill: University of North Carolina Press, 1989.

Tyler, W.W. "The Evolution of the American Type of Water Wheel." *Journal of the Western Society of Engineers* 3 (April 1898).

Underwood, G. *Standard Construction Methods*. New York: McGraw-Hill, 1931.

U.S. Bureau of the Census. *8th Census of the United States, Manufactures* (manuscripts). Washington, D.C.: U.S. Bureau of the Census, 1870.

U.S. Department of the Interior. *Report on the Water-Power of the Eastern Gulf Slope*. Washington, D.C.: U.S. Department of the Interior, 1883.

Wermiel, Sara. "Development of Fireproof Construction in Great Britain and the United States in the Nineteenth Century." *Construction History* 9 (1993): 3-25.

Archives

Continental Eagle Corporation Archives, Prattville, Alabama.

Malcolm C. McMillan Papers, Auburn University Archives.

Shadrack Mims Collection, Alabama Department of Archives and History, Montgomery, Alabama.

Pratt Collection, Alabama Department of Archives and History, Montgomery, Alabama.

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